REMARKS/ARGUMENTS

The Abstract has been replaced with a more descriptive Abstract.

The title has been replaced with a more descriptive title.

The Examiner rejected claims 1 and 3-14 as being anticipated by Knapp et al., U.S. Patent No. 5,838,308.

Knapp et al. disclose an optical touch input device that includes an array of actively addressed sensing elements (18) for sensing a light input, e.g., from a light pen. Each of the light elements includes a capacitor (25) which is charged periodically through operation of a switch device (24) and a discharge circuit. The light elements also include a photosensitive device (28) and a further switch device (27) connected across the capacitor, which in operation demonstrates an optical threshold characteristic whereby the capacitor (25) is discharged in response to the sensing elements being subjected to light which is at or above a predetermined intensity level so as to discriminate from ambient light.

The paragraph bridging columns 7-8 of Knapp et al. states that:

> If during the interval between successive addressing a sensing element is not written into by the light, the charge on its capacitor 25 will be unaffected, apart perhaps from some minor leakage. If, on the other hand, a sensing element is "written" with the light pen then its capacitor 25 will be discharged. During this interval the node 30 of the potential divider constituted by the photoresistor 28 and the light-shielded resistor 29 is positive with respect to the potential of the succeeding row conductor 14. The operation TFT 27, whose gate is connected to the node 30, is controlled by the potential divider. The voltage at node 30 is normally below the gate threshold voltage required to turn on the TFT 27. However when the intensity of light falling on the photoresistor 28 reaches or exceeds a certain value, as happens when the light pen is moved over the sensing element, the voltage at the node 30 increases and exceeds the threshold voltage of TFT 27 thereby turning it on and discharging the capacitor 25. The potential divider, 28 and 29, together with the TFT 27 therefore act in combination as an optical threshold circuit which operates to discharge the capacitor in response to the sensing element being subjected to a certain minimum light intensity level. The component values of the control means can readily be selected to provide different threshold levels as required. At the instant this minimum level is reached

> the TFT 27 rapidly discharges the capacitor 25. Ambient lighting levels are below this minimum and so without light pen illumination the TFT 27 remains off and the charge on capacitor 25 is retained. Thus the sensing element 18 is adapted to distinguish between light from the light pen and light from ambient surroundings and to provide a clear and definite reaction to illumination by the light pen.

Accordingly, Knapp et al. teach a device that can identify the positions where the light is in excess of a threshold value in order to distinguish from the background ambient surroundings. In essence, Knapp et al. determines locations of excess light rather than those of inhibited light.

Claim 1 patentably distinguishes over Knapp et al. by claiming a processor that determines the position of at least one of the plurality of light sensitive elements that has been inhibited from sensing ambient light, whereby the processor distinguishes between ambient surroundings and the at least one of the plurality of light sensitive elements the inhibited from sensing the ambient light.

In direct contrast, Knapp et al. teach the sensing element 18 adapted to distinguish between light from the light pen and light from ambient surroundings and to provide a clear and definite reaction to illumination by the light pen. See, paragraph bridging columns 7-8.

Claims 2-10 depend from claim1 and are patentable for the same reasons asserted for claim 1.

Claims 11, 16, 24, and 26 patentably distinguish over Knapp et al. by claiming the processor distinguishes between ambient surroundings and the at least one of the plurality of light sensitive elements the inhibited from sensing the ambient light

In direct contrast, Knapp et al. teach the sensing element 18 adapted to distinguish between light from the light pen and light from ambient surroundings and to provide a clear and definite reaction to illumination by the light pen. See, paragraph bridging columns 7-8.

Claims 12-15, 17-23, 25, 27, and 28 depend from respective independent claims and are patentable for the same reasons asserted for the respective independent claim.

Knapp et al. teach that the ends of the column address conductors 16 remote from the

circuit 36 are connected to a detection circuit 40 which comprises a set of sense amplifiers 50, one for each column conductor, whose function is to provide an output indicative of whether or not individual sensing elements 18 have been illuminated. See, column 6, lines 40-46. The detection of those sensing elements in this manner, representing the pattern of the light movement, enables data or information to be written into the device. See, column 6, lines 59-63. Accordingly, Knapp et al. teach a circuit that operates in a binary fashion (i.e., yes or no) to determine whether or not sufficient light in excess of the ambient light has reached the circuit.

Claim 29 patentably distinguishes over Knapp et al. by claiming a processor that determines the position of at least one of the plurality of light sensitive elements that has been inhibited from sensing ambient light, whereby the processor senses at least three different levels as a result of one of the light sensitive elements the inhibited from sensing ambient light and provides at least three different output levels in response thereto.

Knapp et al. is a system designed to provide a binary output (i.e., yes or no) using a bright light pen together voltage divider mechanism so that the ambient light is effectively discarded as noise. There is not suggestion that Knapp et al. may be used in a non-binary manner, nor would it be feasible given the existing design that incorporates a voltage divider together with an internal bias point.

Claims 30-36 depend from claim 29 and are patentable for the same reasons asserted for claim 29.

Knapp et al. disclose a circuit topology that includes a bias point for the base of the transistor 27, and hence the terminals of the light sensitive element 29 are internal to the circuit topology. With a bias point that is internal to the circuitry of the element 18, it is difficult to maintain consistent bias points with variable processing techniques.

Claim 37 patentably distinguishes over Knapp et al. by claiming a plurality of light sensitive elements located together with the rear electrode layer wherein the light sensitive elements include a transistor that includes a first terminal interconnected to a first terminal of a

capacitor and a second terminal interconnected to a second terminal of the transistor and a third terminal comprising a gate interconnected to a bias point in common with other gates of other the transistors.

Claims 38-42 depend from claim 37 and are patentable for the same reasons asserted for claim 37.

The Examiner rejected claim 16 as being obvious over Knapp et al. in view of Roberts, US 2002/0149571.

Roberts discloses a force sensor.

Claim 43 patentably distinguishes over Knapp et al. in view of Roberts by claiming a processor that determines the position of at least one of the plurality of light sensitive elements that has been inhibited from sensing ambient light and a sensor that senses an impact with the device where the processor correlating the impact from the sensor with the position to confirm that at least one of the plurality of light sensitive elements has been the inhibited from sensing ambient light.

Knapp et al. teach using a light pen to sense the region of interest. The light pen inherently does not need to touch the display in order to provide a clear indication of whether or not the user has selected a region. Accordingly, there would be no motivation to include a sensor that is correlated to the processor.

Claims 44-47 depend from claim 43 and are patentable for the same reasons asserted for claim 43.

The Examiner rejected claim 26 as being obvious over Knapp.

The Examiner suggested that the 'filter' would include a 'black filter'.

Claim 48 patentably distinguishes over Knapp by claiming a transmissive filter that passes a first color while inhibiting the passage of a second color that is located between the light sensitive elements and the front of the display that inhibits ambient light of the second color from reaching the light sensitive elements.

Claims 49 and 50 depend from claim 48 and are patentable for the same reasons for claim 48.

Applicants believe that no fees are required for the submission of this Amendment. However, if the Commissioner deems that any fees are due, Applicants request that any such fees be charged to Deposit Account No. 03-1550.

Respectfully submitted,

CHERNOFF, VILHAUER, McCLUNG & STENZEL

By: _____

Kevin L. Russell, Reg. No. 38,292
1600 ODS Tower
601 SW Second Avenue
Portland, OR 97204
Tel: 503-227-5631
Fax: 503-228-4373

Dated: September 5, 2005